1997 Monitoring Program
On-site Effluent Monitoring:

Air Effluents

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
ANSTACK Main Plant Ventilation Exhaust Stack	Airborne radioactive effluent points including LWTS and vitrification off-gas	Continuous off-line air particulate monitors	→ Continuous measurement of fixed filter, replaced weekly	→ N/A	→ Real-time alpha and beta monitoring
ANSTSTK Supernatant Treatment System (STS) Ventilation Exhaust	Required by: • 40 CFR 61	Continuous off-line air particulate filters	→ Weekly	→ 52 each location	→ Gross alpha/beta, gamma isotopic*
	Reported in: • ESR • MTAR • QEMDR • ODIS • SER • Air Emissions Annual Report (NESHAP)			Weekly filters composited to 4 each location	→ Quarterly composite for Sr-90, Pu/U isotopic, total U, Am-241, gamma isotopic
ANCSSTK O1-14 Building Ventilation Exhaust		Continuous off-line desiccant columns for water vapor collection	→ Weekly	→ 52 each of two locations	→ H-3 (**ANSTACK** and **ANSTSTK** only)
ANCSRFK Contact Size-reduction Facility Exhaust		Continuous off-line charcoal cartridges	→ Weekly	→ Weekly cartridges composited to 4 each location	→ Quarterly composite for I-129
ANCSPFK Container Sorting and Packaging Facility					
ANVITSK Vitrification HVAC Exhaust					
ANSEISK Seismic Sampler, Vitrification Backup	Airborne radioactive effluent point Required by: • 40 CFR 61 Reported in: • ESR • MTAR • QEMDR • ODIS • SER • Air Emissions Annual Report (NESHAP)	Continuous off-line air particulate filter	→ Weekly	→ 52	→ Filters for gross alpha/beta, gamma isotopic* upon collection

* Weekly gamma isotopic only if gross activity rises significantly.

Sampling Rationale

ANSTACK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Monitors and samples HEPA-filtered ventilation from most process areas, including cell ventilation, vessel off-gas, Fuel Receiving and Storage (FRS) and head end ventilation, analytical area. Requires continuous effluent monitoring per 40 CFR Subpart H, Section 61.93(b) because potential emissions may exceed 0.1 mrem limit.

ANSTSTK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Monitors and samples HEPA-filtered ventilation from building areas involved in treatment of high-level waste supernatant. Requires continuous effluent monitoring per Subpart H, Section 61.93(b) because potential emissions may exceed 0.1 mrem limit.

ANCSSTK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Monitors and samples HEPA-filtered ventilation from 01-14 building, which houses equipment used to treat ceramic melter off-gas. Requires continuous effluent monitoring per Subpart H, Section 61.93(b) because potential emissions may exceed 0.1 mrem limit.

ANCSRFK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Monitors and samples HEPA-filtered ventilation from process area where radioactive tanks, pipes, and other equipment are reduced in volume by cutting with a plasma torch.

ANCSPFK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Monitors and samples ventilation from lag storage area 4, the container sorting and packaging facility.

ANVITSK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Vitrification facility heating, ventilation, and air conditioning effluent exhaust stack. Sampler brought on-line in late 1995 when nonradioactive operations began. Radioactive operation began with first high-level waste transfer in June 1996 and vitrification startup in July 1996.

ANSEISK DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Vitrification system back-up filter for catastrophic-event monitoring in case of primary vitrification HVAC stack failure.

■ Sampling locations are shown on Figure A-1 (p. A-45).

1997 Monitoring Program
On-site Effluent Monitoring:

Air Effluents

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
ANSUPCV Supercompactor Exhaust	Airborne radioactive effluent point Required by: • 40 CFR 61 Reported in: • ESR • MTAR • QEMDR • ODIS • SER • Air Emissions Annual Report (NESHAP)	Continuous off-line air particulate monitor during operation	→ Continuous measurement of fixed filter	→ N/A	→ Real-time beta monitoring
		Continuous off-line air particulate filter	→ Weekly (when operating)	→ 52 maximum	→ Filters for gross alpha/beta, gamma isotopic* upon collection
				Collected filters composited to 4	→ Quarterly composites for Sr-90, Pu/U isotopic, total U, Am-241, gamma isotopic
OVEs/PVUs Outdoor Ventilated Enclosures/ Portable Ventilation Units	Airborne radioactive effluent points Required by: • 40 CFR 61 Reported in: • ESR • MTAR • QEMDR • ODIS • Air Emissions Annual Report (NESHAP)	Continuous off-line air particulate filter	→ As required	→ 1 each location	→ Filters for gross alpha/beta, gamma isotopic* upon collection
				Collected filters** composited to 4	→ Quarterly composites for Sr-90, Pu/U isotopic, total U, Am-241, gamma isotopic

* Gamma isotopic only if gross activity rises significantly.

** If gross determination of individual filter is significantly higher than background, individual sample would be submitted immediately for isotopic analysis.

Sampling Rationale

ANSUPCV	DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3. Monitors and samples HEPA-filtered ventilation from area where low-level radioactive waste volume is reduced by compaction.
OVEs/PVUs	DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3. Outdoor ventilated enclosures; portable ventilation units used for handling of radioactive materials or for decontamination in areas without containment ventilation.

- Sampling locations are shown on Figure A-1 (p. A-45).

1997 Monitoring Program
Environmental Surveillance:

Air Effluents and On-site Ambient Air

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
ANLLWTVC Low-level Waste Treatment and Ventilation, "cold" side **ANLLWTVH** Low-level Waste Treatment and Ventilation, "hot" side **ANLAUNV** Laundry Change Room Ventilation	Airborne radioactive effluent point Required by: • 40 CFR 61 Reported in: • ESR • MTAR • QEMDR • ODIS • SER • Air Emissions Annual Report (NESHAP)	Continuous off-line air particulate filter	→ Weekly (monthly at ANLAUNV)	→ 52 each location (12 at ANLAUNV)	→ Gross alpha/beta, gamma isotopic* upon collection
ANLAGAM Lag Storage Area Ambient Air **ANNDAAM** NDA Ambient Air	Ambient "diffuse source" air emissions Reported in: • MTAR • QEMDR • SER • Air Emissions Annual Report (NESHAP)	Continuous air particulate filter	→ Weekly	→ 52 each location Weekly filter composited to 4 each location	→ Gross alpha/beta → Quarterly composite for Sr-90, gamma isotopic, Pu/U isotopic, total U, Am-241
ANSDAT9** SDA Trench 9 Ambient Air	Ambient "diffuse source" air emissions Reported in: • Quarterly reports to NYSDEC • MTAR • QEMDR • SER	Continuous air particulate filter	→ Weekly	→ 52 Weekly filter composited to 4	→ Gross alpha/beta → Quarterly composite for gamma isotopic
		Continuous off-line desiccant columns for water vapor collection	→ Weekly	→ 52	→ H-3
		Continuous off-line charcoal cartridges	→ Monthly	→ Monthly cartridges composited to 4	→ Quarterly composite for I-129

* Gamma isotopic only if gross activity rises significantly.

** Sampling frequency and analytical parameters as directed by NYSERDA.

Sampling Rationale

ANLLWTVC DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.
ANLLWTVH

Samples nonradioaactive and radioactive sides of ventilation exhaust from low-level waste treatment facility.

ANLAUNV DOE/EH-0173T, 3.0; DOE/EP-0096, 3.3.

Samples ventilation from contaminated clothing laundry.

ANLAGAM DOE/EH-0173T, 3.3.2.

Monitors ambient air in the lag storage area, a possible diffuse source of air emissions.

ANNDAAM DOE/EH-0173T, 3.3.2.

Monitors ambient air in NDA area, a possible diffuse source of air emissions.

ANSDAT9 DOE/EH-0173T, 3.3.2.

Monitors ambient air by SDA trench 9, a possible diffuse source of air emissions. WVDP support of NYSERDA.

- Sampling locations are shown on Figure A-1 (p. A-45).

1997 Monitoring Program
On-site Effluent Monitoring:

Liquid Effluents

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNSP001 Lagoon 3 Discharge Weir	Primary point of liquid effluent batch release Required by: • SPDES Permit Reported in: • Monthly SPDES DMR • ESR • MTAR • QEMDR • ODIS • SER	Grab liquid	Daily, during lagoon 3 discharge*	40-80	Daily for gross beta, conductivity, flow
				7-12	Every 6 days a sample is analyzed for gross alpha/beta, H-3, Sr-90, gamma isotopic
				Composite of daily samples for each discharge, 4-8	Weighted composite for gross alpha/beta, H-3, C-14, Tc-99, Sr-90, I-129, gamma isotopic, Pu/U isotopic, total U, Am-241 for each month of discharge
		Composite liquid	Twice during discharge, near start and near end	8-16	Two 24-hour composites for BOD-5, suspended solids, SO_4, NO_3, NO_2, NH_3, total Al, Fe, and Mn, total recoverable Cd, Cr, Cu, Ni, Pb and Zn, dissolved As and Cu, dissolved sulfide
		Grab liquid	Twice during discharge, near start and near end	8-16	Settleable solids, total dissolved solids, pH, cyanide amenable to chlorination, oil & grease, surfactant (as LAS), total recoverable Co, Cr^{+6}, Se, and V, dichlorodifluoromethane, trichlorofluoromethane, 3,3-dichlorobenzidine, tributyl phosphate, hexachlorobenzene, alpha-BHC, heptachlor, xylene, 2-butanone
		Composite liquid	Semiannual	2	A 24-hour composite for titanium
		Composite liquid	Annual	1	A 24-hour composite for Ba and Sb
		Grab liquid	Semiannual	2	Bis(2-ethylhexyl) phthalate, 4-dodecene
		Grab liquid	Annual	1	Chloroform

* Lagoon 3 is discharged between four and eight times per year, as necessary, averaging ten days per discharge.

Sampling Rationale

WNSP001 DOE 5400.5; DOE/EH-0173T, 2.3.3.

By DOE Order all liquid effluent streams from DOE facilities shall be evaluated and their potential for release of radionuclides addressed.

New York State SPDES permit no. NY0000973.

These requirements for radiological parameters are met by daily grab sampling during periods of lagoon 3 discharge. Sampling for chemical constituents is performed near the beginning and end of each discharge period to meet the site SPDES permit. Both grab samples and 24-hour composite samples are collected.

- Sampling location is shown on Figure A-2 (p. A-46).

1997 Monitoring Program
On-site Effluent Monitoring:

Liquid Effluents

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNSP006 Frank's Creek at Security Fence	Combined facility liquid discharge Required by: • SPDES Permit Reported in: • MTAR • QEMDR • SER	Timed continuous composite liquid	Weekly	52	Gross alpha/beta, H-3, pH, conductivity
				Weekly samples composited to 12	Monthly composite for gamma isotopic and Sr-90 (monthly composite shared with NYSDOH)
				Weekly samples composited to 4	Quarterly composite for C-14, I-129, Pu/U isotopic, total U, Am-241, Tc-99
		Grab liquid	Semiannual	2	NPOC, TOX, Ca, Mg, Na, K, Ba, Mn, Fe, Cl, SO_4, NO_3+NO_2-N, F, HCO_3, CO_3
WNSP007 Sanitary Waste Discharge	Liquid effluent point for sanitary and utility plant combined discharge Required by: • SPDES Permit Reported in: • Monthly SPDES DMR • ESR • MTAR • QEMDR • ODIS • SER	24-hour composite liquid	3 each month	36	Gross alpha/beta, H-3, pH, suspended solids, NH_3, NO_2-N, BOD-5, total Fe
				Monthly samples composited to 4 quarterly samples	Gamma isotopic
		Grab liquid	3 each month	36	Oil & grease
		Grab liquid	Weekly	52	pH, settleable solids, total residual chlorine
		Grab liquid	Annual	1	Chloroform
WNSDADR SDA Run-off	Surface water run-off from south portion of SDA Required by: • Interim Measures Compliance Reported in: • Quarterly reports to NYSDEC • MTAR • QEMDR • SER	Grab liquid	Monthly	12	pH, total suspended solids, oil & grease, flow, gross alpha/beta, H-3, gamma isotopic

Sampling Rationale

WNSP006 DOE/EH-0173T, 5.10.1.1.

By DOE Order all liquid effluent streams from DOE facilities shall be evaluated and their potential for release of radionuclides addressed.

In accordance with WVDP SPDES permit no. NY0000973, outfall 116 (pseudo-monitoring point) uses flow data from WNSP006. Flow augmentation parameters (flow and total dissolved solids [TDS] are monitored at location WNSP006; calculated TDS and flow data related to sample point WNSP006 are reported for pseudo-monitoring point 116 in the monthly SPDES Discharge Monitoring Report (DMR).

WNSP007 DOE 5400.5; DOE/EH-0173T, 2.3.3.

Sampling rationale is based on New York State SPDES permit no. NY0000973 and DOE 5400.5 criteria for discharge of radioactivity to and from the sewage treatment plant.

WNSDADR NYSERDA interim measures compliance.

WVDP support of NYSERDA.

Grab sample monitoring surface water runoff from south portion of SDA.

- Sampling locations are shown on Figure A-2 (p. A-46).

1997 Monitoring Program
Environmental Surveillance:

On-site Surface Water

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNSWAMP NE Swamp Drainage	Site surface drainage Reported in: • ESR • MTAR • QEMDR • ODIS • SER	Timed continuous composite liquid	→ Weekly	→ 52	→ Gross alpha/beta, H-3, pH, conductivity
				Weekly samples composited to 12	→ Monthly composite for gamma isotopic and Sr-90 (monthly composite shared with NYSDOH)
				Weekly samples composited to 4	→ Quarterly composite for C-14, I-129, Pu/U isotopic, total U, Am-241
		Grab liquid	→ Semiannual	→ 2	→ NPOC, TOX, Ca, Mg, Na, K, Ba, Mn, Fe, Cl, SO_4, NO_3+NO_2-N, F, HCO_3, CO_3
WNSW74A North Swamp Drainage	Site surface drainage Reported in: • ESR • MTAR • QEMDR • ODIS • SER	Timed continuous composite liquid	→ Weekly	→ 52	→ Gross alpha/beta, H-3, pH, conductivity
				Weekly samples composited to 12	→ Monthly composite for gamma isotopic, Sr-90
				Weekly samples composited to 4	→ Quarterly composite for C-14, I-129, Pu/U isotopic, total U, Am-241
		Grab liquid	→ Semiannual	→ 2	→ NPOC, TOX, Ca, Mg, Na, K, Ba, Mn, Fe, Cl, SO_4, NO_3+NO_2-N, F, HCO_3, CO_3
WN8D1DR High-level Waste Farm Underdrain	Drains subsurface water from HLW storage tank area Reported in: • MTAR • QEMDR • SER	Grab liquid	→ Weekly	→ 52	→ Gross alpha/beta, H-3, pH
				Weekly samples composited to 12	→ Monthly composite for gamma isotopic, Sr-90

Sampling Rationale

WNSWAMP DOE/EH-0173T, 5.10.1.1.

NE site surface water drainage; provides for the sampling of this discrete drainage path for uncontrolled surface waters just before they leave the site's controlled boundary. Waters represent surface and subsurface drainages from the construction and demolition debris landfill (CDDL), old hardstand areas, and other possible north plateau sources of radiological or nonradiological contamination.

WNSW74A DOE/EH-0173T, 5.10.1.1.

N site surface water drainage; provides for the sampling of this discrete drainage path for uncontrolled surface waters just before they leave the site's controlled boundary. Waters represent surface and subsurface drainages from lag storage areas and other possible north plateau sources of radiological or nonradiological contamination.

WN8D1DR DOE/EH-0173T, 5.10.1.3.

Monitors the potential influence on subsurface drainage surrounding the high-level waste tank farm.

- Sampling locations are shown on Figure A-2 (p. A-46).

1997 Monitoring Program
Environmental Surveillance:

On-site Surface Water

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNSP008 French Drain	Drains subsurface water from LLWTF lagoon area Required by: • SPDES Permit Reported in: • Monthly SPDES DMR • ESR • MTAR • QEMDR • ODIS • SER	Grab liquid	Monthly	12	Gross alpha/beta, H-3
		Grab liquid	3 each month	36	Conductivity, pH, BOD-5, total Fe, total recoverable Cd and Pb
		Grab liquid	Annual	1	As, Cr, total Ag and Zn
WNSP005 Facility Yard Drainage	Combined drainage from facility yard area Reported in: • MTAR • QEMDR • SER	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH
WNCOOLW Cooling Tower Basin	Cools plant utility steam system water Reported in: • MTAR • QEMDR • SER	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH
				Monthly samples composited to 4	Quarterly composite for gamma isotopic

Sampling Rationale

WNSP008 DOE/EH-0173T, 5.10.1.3.

French drain of subsurface water from lagoon (LLWTF) area. NYSDEC SPDES permit no. NY0000973 also provides for the sampling of this discrete drainage path for uncontrolled subsurface waters before they flow into Erdman Brook. Waters represent subsurface drainages from downward infiltration around the LLWTF and lagoon systems. This point would also monitor any subsurface spillover from the overfilling of lagoons 2 and 3. Sampling of significance for both radiological and nonradiological contamination.

WNSP005 Facility yard surface water drainage; generally in accordance with DOE/EH-0173T, 5.10.1.1. Previously in accordance with NYSDEC SPDES permit no. NY0000973.

Provides for the sampling of this discrete drainage path for uncontrolled surface waters just after outfall 007 discharge into the drainage and before they flow to Erdman Brook. Waters represent surface and subsurface drainages primarily from the main plant yard area. Historically this point was used to monitor sludge pond and utility room discharges to the drainage. These two sources have been rerouted. Migration of residual site contamination around the main plant dictates surveillance of this point primarily for radiological parameters.

WNCOOLW Facility cooling tower circulation water; generally in accordance with DOE/EH-0173T, 5.10.1.1.

Operational sampling carried out to confirm no migration of radiological contamination into the primary coolant loop of the HLWTF and/or plant utility steam systems. Migration from either source might indicate radiological control failure.

■ Sampling locations are shown on Figure A-2 (p. A-46).

1997 Monitoring Program
Environmental Surveillance:

On-site Surface Water

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNFRC67* Frank's Creek E of SDA	Drains NYS Low-level Waste Disposal Area Reported in: • MTAR • QEMDR • SER • Reported to NYSERDA	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH
WNERB53* Erdman Brook N of Disposal Areas	Drains NYS and WVDP disposal areas Reported in: • MTAR • QEMDR • SER • Reported to NYSERDA	Grab liquid	Weekly	52	Gross alpha/beta, H-3, pH
WNNDADR Drainage between NDA and SDA	Drains WVDP disposal and storage area Reported in: • MTAR • QEMDR • SER	Timed continuous composite liquid	Weekly	52	pH
				Weekly samples composited to 12	Monthly composite for gross alpha/beta, gamma isotopic, H-3
				Weekly samples composited to 4	Quarterly composite for Sr-90, I-129
		Grab liquid	Semiannual	2	NPOC, TOX
WNDCELD Drainage S of Drum Cell	Drains WVDP storage area Reported in: • MTAR • QEMDR • SER	Grab liquid	Monthly	12	pH, gross alpha/beta
				Monthly samples composited to 4	Quarterly composite for Sr-90, I-129, gamma isotopic, H-3
WNNDATR** NDA Trench Interceptor Project	On-site groundwater interception Reported in: • MTAR • QEMDR • SER	Grab liquid	Monthly	12	Gross alpha/beta, H-3, gamma isotopic, NPOC, TOX
				Monthly samples composited to 4	Quarterly composite for I-129

* Monthly sample collected by NYSDOH
** Coordinated with Waste Management Operations

Sampling Rationale

WNFRC67 DOE/EH-0173T, 5.10.1.1.

Monitors the potential influence of both the SDA and drum cell drainage into Frank's Creek east of the SDA and upstream of the confluence with Erdman Brook.

WNERB53 DOE/EH-0173T, 5.10.1.1.

Monitors the potential influence of the drainages from the SDA and the WVDP disposal area into Erdman Brook upstream of the confluence with Frank's Creek.

WNNDADR DOE/EH-0173T, 5.10.1.1.

Monitors the potential influence of the WVDP storage and disposal area drainage into Lagoon Road Creek upstream from confluence with Erdman Brook.

WNDCELD DOE/EH-0173T, 5.10.1.1.

Monitors potential influence of drum cell drainage into Frank's Creek south of the SDA and upstream of WNFRC67.

WNNDATR DOE Order 5400.1, IV.9.

Monitors groundwater in vicinity of the NDA interceptor trench project. The grab sample is taken directly from the trench collection system.

- Sampling locations are shown on Figure A-2 (p. A-46).

1997 Monitoring Program
Environmental Surveillance:

On-site Surface Water

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNSTAW Series On-site standing water ponds not receiving effluent include: **WNSTAW4** Border pond SW of AFRT240 **WNSTAW5** Border pond SW of DFTLD13 **WNSTAW6** Borrow pit NE of Project facilities **WNSTAW9** North reservoir near intake **WNSTAWB** Background pond at Sprague Brook maintenance building	Water within vicinity of plant airborne or water effluent Reported in: • MTAR • QEMDR • SER	Grab liquid	→ Annual	→ 1 each location*	→ Gross alpha/beta, H-3, pH, conductivity, Cl, Fe, Mn, Na, NO_3+NO_2-N, SO_4

* Sampling depends upon on-site ponding conditions during the year.

Sampling Rationale

WNSTAW Series DOE/EH-0173T, 5.10.1.1.

Monitoring of on- and off-site standing waters at locations listed below. Although none receive effluent directly, the potential for contamination is present except at the background location. Former collecting sites 1, 2, 3, 7, and 8 were deleted from the monitoring program because they were built over or are now dry.

WNSTAW4 Border pond located south of AFRT240. Chosen to be a location for obtaining high potential concentration, based on meteorological data. Perimeter location adjacent to a working farm. Drainage extends through private property and is accessible to the public.

WNSTAW5 Border pond located west of Project facilities near the perimeter fence and DFTLD13. Chosen to be a location for obtaining high potential concentration, based on meteorological data. Location is adjacent to private residence and potentially accessible by the general public.

WNSTAW6 Borrow pit northeast of Project facilities just outside of inner security fence. Considered to be the closest standing water to the main plant and high-level waste facilities (in lieu of the availability of WNSTAW1).

WNSTAW9 North reservoir near intake. Chosen to provide data in the event of potentially contaminated site potable water supply. Location is south of main plant facilities.

WNSTAWB Pond located near the Sprague Brook maintenance building. Considered a background location; approximately 14 kilometers north of the WVDP.

- Sampling locations are shown on Figures A-2, A-4, and A-9 (pp. A-46, A-48, and A-53, respectively).

1997 Monitoring Program
Environmental Surveillance:

On-site Potable Water

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
WNDNK Series Site Potable Water includes: **WNDNKMS** Maintenance Shop Drinking Water **WNDNKMP** Main Plant Drinking Water **WNDNKEL** Environmental Laboratory Drinking Water **WNDNKUR*** Utility Room (EP-1) Potable Water Storage Tank	Sources of potable water within site perimeter Reported in: • MTAR • QEMDR • SER • also reported to Cattaraugus County	Grab liquid	→ Monthly	→ 12 per location	→ Gross alpha/beta, H-3, pH, conductivity
		Grab liquid	→ Annual	→ 1	→ As, Ba, Cd, Cr, Hg, Se, fluoride, NO_3

* **WNDNKUR.** Sample for NO_3 to be collected in March. Pb and Cu also will be sampled at this site based upon Cattaraugus County Health Department guidance.

Sampling Rationale

WNDNK Series	Site drinking water; generally according to DOE/EH-0173T, 5.10.1.2. Potable water sampling carried out to confirm no migration of radiological and/or nonradiological contamination into the site's drinking water supply.
WNDNKMS	Site drinking water; generally according to DOE/EH-0173T, 5.10.1.2. Potable water sampled at the maintenance shop in order to monitor a point that is at an intermediate distance from the point of potable water generation and that is used heavily by site personnel.
WNDNKMP	Site drinking water; generally according to DOE/EH-0173T, 5.10.1.2. Same rationale as WNDNKMS but sampled at the main plant water fountain.
WNDNKEL	Site drinking water; generally according to DOE/EH-0173T, 5.10.1.2. Potable water sampled at the Environmental Laboratory.
WNDNKUR	Site drinking water; generally according to DOE/EH-0173T, 5.10.1.2. Sampled at the utility room potable water storage tank before the site drinking water distribution system. Sample location is entry point EP-1.

- Sampling points are within site facilities and are not detailed on figures.

1997 Monitoring Program
Environmental Surveillance:

On-site Groundwater

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
North Plateau background well (not in a SSWMU) **NB1S** Low-level Waste Treatment Facilities (SSWMU #1) **103** **104 C** **105 C** **106** **107** **108** **110** **111** **116 C** **8604 C** **8605** Miscellaneous Small Units (SSWMU #2) **201 U** **204 U** **205** **206 C** **208** Liquid Waste Treatment System (SSWMU #3) **301 U** **302 U**	Groundwater monitoring points around site super solid waste management units (SSWMUs) Reported in: • SER • Quarterly Groundwater Reports	Grab liquid	Four times per year (generally)*	4 each well (generally)*	Gross alpha, gross beta, tritium*
		Direct field measurement of sample discharge water	Each sampling event*	Twice each sampling event	Conductivity, pH

NOTE: "U" designates upgradient, "B" designates background, and "C" designates crossgradient wells; the remainder are downgradient.

* Sampling frequency and analytes vary from point to point. See Table 3-1 (p. 3-7) for a summary sampling schedule and a listing of analytes and Table E-1 (App. E, p. E-3) for a listing of analytes monitored at each location. See Appendix E for a listing of results from each location.

Sampling Rationale

On-site Groundwater	DOE Order 5400.1, IV.9; DOE/EH-0173T, 5.10.1.3; 40 CFR Parts 264 and 265, Subpart F. The on-site WVDP groundwater monitoring program focuses on radiological and chemical surveillance of both active and inactive super solid waste management units (SSWMUs). The program allows for the determination of water quality. In addition, using wells situated hydraulically upgradient (background) and downgradient of SSWMUs allows for both detection of groundwater contamination and evaluation of the effects associated with the individual SSWMUs. Groundwater protection is addressed in the Groundwater Protection Management Program, WVDP-091. Groundwater monitoring is detailed in the Groundwater Monitoring Plan, WVDP 239.
SSWMU #1	Low-level waste treatment facilities, including four active lagoons, lagoons 2, 3, 4 and 5, and an inactive, filled-in lagoon, lagoon 1.
SSWMU #2	Miscellaneous small units, including the sludge pond, the solvent dike, the paper incinerator, the equalization basin, and the kerosene tank.
SSWMU #3	Liquid waste treatment system containing effluent from the supernatant treatment system.

■ Sampling locations are shown on Figure A-3 (p. A-47).

1997 Monitoring Program
Environmental Surveillance:

On-site Groundwater

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
HLW Storage and Processing Tank (SSWMU #4) **401 U** **402 U** **403 U** **405 C** **406** **408** **409**	Groundwater monitoring points around site super solid waste management units (SSWMUs) Reported in: • SER • Quarterly Groundwater Reports	Grab liquid	Four times per year (generally)*	4 each well (generally)*	Gross alpha, gross beta, tritium*
Maintenance Shop Leach Field (SSWMU #5) **501 U** **502**		Direct field measurement of sample discharge water	Each sampling event*	Twice each sampling event	Conductivity, pH
Low-level Waste Storage Area (SSWMU #6) **601 D** **602** **604** **605** **8607 U** **8609 U**					
Chemical Process Cell Waste Storage Area (SSWMU #7) **704** **706 U** **707 C**					

NOTE: "U" designates upgradient, "B" designates background, and "C" designates crossgradient wells; the remainder are downgradient.
* Sampling frequency and analytes vary from point to point. See Table 3-1 (p. 3-7) for a summary sampling schedule and a listing of analytes and Table E-1 (App. E, p. E-3) for a listing of analytes monitored at each location. See Appendix E for a listing of results from each location.

Sampling Rationale

On-site Groundwater	DOE Order 5400.1, IV.9; DOE/EH-0173T, 5.10.1.3; 40 CFR Parts 264 and 265, Subpart F. The on-site WVDP groundwater monitoring program focuses on radiological and chemical surveillance of both active and inactive super solid waste management units (SSWMUs). The program allows for the determination of water quality. In addition, using wells situated hydraulically upgradient (background) and downgradient of SSWMUs allows for both detection of groundwater contamination and evaluation of the effects associated with the individual SSWMUs. Groundwater protection is addressed in the Groundwater Protection Plan, WVDP-091. Groundwater monitoring is covered in the Groundwater Monitoring Plan, WVDP-239.
SSWMU #4	High-level waste storage and processing area, including the high-level radioactive waste tanks, the supernatant treatment system, and the vitrification facility.
SSWMU #5	Maintenance shop sanitary leach field, formerly used by NFS and WVNS to process domestic sewage generated by the maintenance shop.
SSWMU #6	Low-level waste storage area includes metal and fabric structures housing low-level radioactive wastes being stored for future disposal.
SSWMU #7	Chemical process cell (CPC) waste storage area contains packages of pipes, vessels, and debris from decontamination and cleanup of chemical process cell in the former reprocessing plant.

■ Sampling locations are shown on Figure A-3 (p. A-47).

1997 Monitoring Program
Environmental Surveillance:

On-site Groundwater

Sample Location Code	Monitoring/Reporting Requirements	Sampling Type/Medium	Collection Frequency	Total Annual Sample Collections	Analyses Performed/ Composite Frequency
Construction and Demolition Debris Landfill (CDDL) (SSWMU #8) **801 U** **802** **803** **804** **8603 U** **8612**	Groundwater monitoring points around site super solid waste management units (SSWMUs) Reported in: • SER • Quarterly Groundwater Reports	Grab liquid	→ Four times per year (generally)*	→ 4 each well (generally)*	→ Gross alpha, gross beta, tritium*
NRC-licensed Disposal Area (NDA) (SSWMU #9) **901 U** **902 U** **903** **906** **908 U** **909** **910** **8610** **8611** **NDATR**		Direct field measurement of sample discharge water	→ Each sampling event*	→ Twice each sampling event	→ Conductivity, pH
IRTS Drum Cell (SSWMU #10) **1005 U** **1006** **1007** **1008b B** **1008c B**					

NOTE: "U" designates upgradient, "B" designates background, and "C" designates crossgradient wells; the remainder are downgradient.

* Sampling frequency and analytes vary from point to point. See Table 3-1 (p. 3-7) for a summary sampling schedule and a listing of analytes and Table E-1 (App. E, p. E-3) for a listing of analytes monitored at each location. See Appendix E for a listing of results from each location.

Sampling Rationale

On-site Groundwater	DOE Order 5400.1, IV.9; DOE/EH-0173T, 5.10.1.3; 40 CFR Parts 264 and 265, Subpart F. The on-site WVDP groundwater monitoring program focuses on radiological and chemical surveillance of both active and inactive super solid waste management units (SSWMUs). The program allows for the determination of water quality. In addition, using wells situated hydraulically upgradient (background) and downgradient of SSWMUs allows for both detection of groundwater contamination and evaluation of the effects associated with the individual SSWMUs. Groundwater protection is addressed in WVDP-091, the Groundwater Plan Program. Groundwater monitoring is covered in WVDP-239, the Groundwater Monitoring Plan.
SSWMU #8	The construction and demolition debris landfill (CDDL), used by NFS and the WVDP to dispose of nonhazardous and nonradioactive materials.
SSWMU #9	The NRC-licensed disposal area (NDA) contains radioactive wastes generated by NFS and the WVDP.
SSWMU #10	The integrated radioactive waste system (IRTS) treatment drum cell stores cement-stabilized low-level radioactive waste.

■ Sampling locations are shown on Figure A-3 (p. A-47).